

# Earthquake and aftershocks: electoral implications of a natural disaster in a multilevel political setting

João Cancela (NOVA FCSH)

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## Abstract

How do voters react to unexpected and highly consequential events? Research on the electoral effects of such instances, and of natural disasters in particular, has been growing in recent years. This paper adds to this literature by examining two questions on the electoral effects of disasters: Do voters' responses to a natural disaster and its consequences depend on the type of election at stake? And for how long do such electoral effects last? In order to tackle these questions, the paper exploits the aftermath of an 1998 earthquake that hit the Azores archipelago, provoking very asymmetrical levels of damage both between and within islands. Azorean voters have since been regularly called to the polls to elect officials at the local, regional, national, and supra-national level, which allows us to measure the extent to which they sanction incumbents at these various realms of government. The results indicate that voters who were most affected by the earthquake are able to disentangle their electoral sanctions and rewards depending on the level of government at stake. They also became more likely to vote **TO BE CONTINUED**. The findings are particularly relevant in contexts in which the authorities' capacity to deliver relief efforts might be inhibited due to the economic, political or geographical constraints.

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This paper is a work in progress, and feedback is most welcome: [joaocancela@fcsb.unl.pt](mailto:joaocancela@fcsb.unl.pt)

The most recent version of the document can be found at <https://joaocancela.github.io/pdf/earthquake.pdf>.

# 1 Introduction

Models of electoral behaviour tend to be put to test in ordinary times. Depending on the preferred type of theoretical explanation, turnout and/or vote choice are seen as the product of demographic attributes, personal orientations towards politics, judgements of the quality of candidates, objective economic conditions, institutional factors, and of particular aspects of the election at hand. These variables can interact with each other and their explanatory weight may vary depending on the type or context of election. But, by and large, models of electoral behaviour assume that there is an element of plausible predictability in how voters should behave in a given election.

Then there are extraordinary times: abrupt changes of circumstances that might make the foundations of electoral models more shaky. Exogenous events or processes affect the entire population or parts of it, in particular, can push explanatory models into stress by introducing increased degrees of uncertainty. Economic shocks, pandemic outbursts or natural disasters count among examples of circumstances which might push voters into exhibiting a different behaviour than the one they would show in absence of the intervening factor. However, to complicate matters, such events can be relatively short in time, but their impacts may last for long. For instance, while a natural disaster can storm an area for a limited period, the result damage might take several years to repair.

By definition, it is harder to systematically assess the implications of rare events, not only due to their scarcity but to the fact that their impact can be so widespread that disentangling their causal effects is close to impossible. In recent years, however, scholars have tried to come to grips with the potential implications of extraordinary events, either by looking at instances in which their impact is asymmetrical or by carefully controlling the comparisons with non-treated units of observation. This has generated a literature rich with findings, although those are often in tension with one another.

This paper adds to this literature by studying the impact of an exogenous event – a 1998 earthquake with its epicentre in the Atlantic Ocean but quite close to the shore of Faial, one of the nine Azores islands (Portugal) – in the electoral behaviour of those who were affected by it. The analysis is performed by exploiting the asymmetrical levels of physical impact that the earthquake had in five Azorean islands, which ranged from null in entire islands to widespread destruction in some areas of other islands. Using the impact of the earthquake as an independent variable, I examine the impact of this disaster on the aggregate (sub-municipal) levels of voter turnout, on the one hand, and incumbents' vote share, on the other. Crucially, the analysis takes into account different types of elections over the ensuing two decades time, which allows us to disentangle the extent to which, and for how long, voters sanction (or reward) officials at various levels

of government.

The results suggest that voters were sophisticated enough to attribute varying levels of blame. Contrary to influential the expectations laid down by Achen and Bartels (2016), I find evidence that voters are able to distinguish . In that sense, rather than blind retrospection, I find that voters make use of what could be labelled “sensible retrospection”: the ability to extricate responsibilities between officials holding office in various levels of government, while not extending their punishment of incumbent parties across these different levels . I also find evidence that in the areas most affected by the disaster voters mobilise in increased numbers to participate in the type of elections that are be seen as more consequential to the management of the damage at hand; at the same time, participation in less salient elections decreases.

After reviewing the relevant literature in the next section, I present the case in detail in section 3, describing both the most relevant parts of the political setting and of the earthquake and its damage. Section 5 describes the sources of the data and the employed methods, whereas section 6 reports the results of the analysis and their interpretation. The paper concludes with a discussion of how the results improve our understanding of the electoral implications of natural disasters, especially by trying to set the boundaries of generalisation.

## 2 Natural disasters and blind retrospection

Natural disasters are far Interest on the electoral consequences of natural disasters has been growing tremendously in recent decades. A paper by Abney and Hill (1966) introduced the topic, but no follow-up studies were conducted in the following decades. However, since the publication of Arceneaux and Stein (2006), the amount of studies . What explains this sudden

Two

Second, the increased interest on can be seen as a practical illustration of the turn in the social sciences in general towards the identification of causal relationships, especially following the “credibility revolution” (Angrist and Pischke, 2010) . Natural disasters provide what are often labelled as “natural experiments”, i.e. episodes that while not being artificially manipulated by researchers provide a setting sufficiently akin to a laboratory environment in which assignment to the treated/control groups is random. While some criticise the fuzziness of this concept (KKV, footnote), it is now fairly agreed upon that stochastic events such as disasters have the potential to allow researchers to properly identify causal relationships – albeit the extent to which researchers can generalize beyond the case under analysis is likely to keep fuelling discussions in time to come.

Finally, natural disasters are likely to keep emerging as a phenomenon worthy of study insofar as their rareness should .

Litmus test

The electoral implications of natural disasters are . On the one hand,

Natural disasters are becoming a setting

Examining Italian data from 1993 to 2015, Masiero and Santarossa (2021) show that destructive earthquakes significantly increase the vote share of mayors in affected areas. Their analysis points to the combination of two mechanisms that prop up the magnitude of incumbency advantage. On the one hand, mayors are able to lead relief and recovery efforts; on the other, they benefit from much increased media attention.

(Achen and Bartels, 2016, 19)

Abney and Hill (1966, 2) (Abney and Hill, 1966, 2) Rudolph and Kuhn (2018)

### 3 The Azores: a multilevel political setting

In July 9 1998 at 5.19 am a

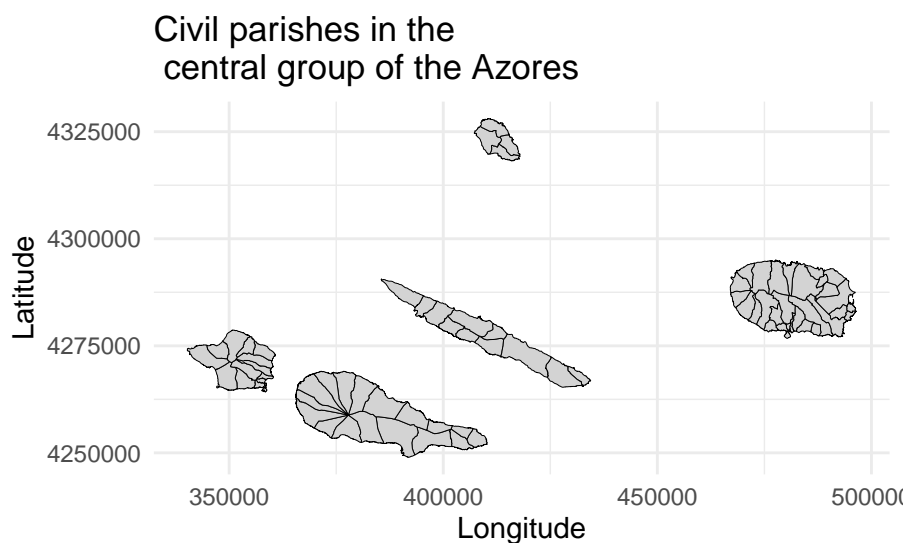


Figure 1: The area under study comprises 75 parishes scattered over 9 municipalities in 5 islands. This map was produced using geographic data made publicly available by the Portuguese Directorate General for Territory (<https://www.dgterritorio.gov.pt/cartografia/cartografia-tematica/caop?language=en>).

- 4 Hypotheses
- 5 Data and methods
- 6 Analysis
- 7 Discussion

## References

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## **Appendix A   Summary of findings in the literature**

Table A1: Literature review

<b>a</b>	<b>b</b>
1	3
2	4

## **Appendix B   Robustness tests and alternative model specifications**